

Genoa National Fish Hatchery News and Notes



November 2016



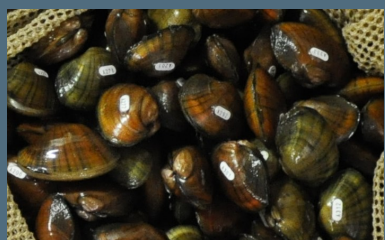
About Genoa NFH

Genoa NFH was established over 80 years ago by the Upper Mississippi River Fish and Wildlife Act. The mission of the hatchery has changed from providing sport fish for area waters to a conservation hatchery concerned with the recovery of endangered aquatic species.

The hatchery is open for tours during business hours. For large groups, please call for an appointment. You can reach the hatchery at 608-689-2605 from 7:30 am to 3:30 pm. You can also find us online at:

fws.gov/midwest/genoa

And on Facebook at:
facebook.com/GenoaNFH



Driftless area stream stocked mussels appear to be doing well

Farmers Creek is a small stream in eastern Iowa. It flows into the Makoqueta system that ultimately reaches the Mississippi River. Years ago the mussel population there was decimated by the breach of a manure holding pond during a rain event. Since 2007 Genoa NFH has been routinely stocking fatmucket and a few other assorted species in Farmers Creek. So far we have released over 5,000 sub-adult fatmucket in Farmers Creek with either a glue dot or hall-print shellfish tags. Iowa DNR fisheries biologists have been watching these animals whenever possible to monitor survival and look for signs of recruitment. Recently a trip to the stream recovered three fatmucket shells that had likely been found first by raccoons. Other visits have shown that the older animals have reached maturity and are brooding larvae during the spawning season. The final step in this process is to document that the established population has begun to reproduce on their own. It will take lots of searching, but the ultimate goal of any restoration program is to show that the stocked mussels have survived and carried on the life cycle to the next generation. By Nathan Eckert



Recent fresh dead fatmucket mussels.
Photo Credit: Scott Gritters

A Fall Day Out at the Hatchery

On November 22, 2016, students from Viterbo University drove down to Genoa National Fish Hatchery for a tour with their Professor Michael Alfieri. While not the most exciting time of the year to tour the hatchery, just after the pond harvests and before the trout eggs arrive in January, they were able to still see how the hatchery functions and some of the programs up close in the mussel building. The Freshwater Ecology course serves as an introductory course at Viterbo to give students general knowledge in environmental sciences. The students were interested in how the hatchery life support systems work, why the hatchery works with the various species on station as well as careers in the Fish and Wildlife Service and possible internship opportunities. While most of the buildings were empty and getting cleaned up from the production year, the Coldwater Building still holds the coaster brook trout that will go up north for restoration efforts along Lake Superior. The students were able to learn about the biosecurity methods in place (disinfection mats, hand sanitizers) to help keep the fish isolated on station with well water, preventing possible disease transmission from other warm water production buildings, how well water is treated to remove the nitrogen coming up out of the ground and adding oxygen through low head oxygenators and packed columns and finally about the restoration efforts for the brook trout in Lake Superior and some of its tributaries. The next stop on the tour was in the mussel culture building, where they were able to see some of the mussels and host species up close. With the close of the production season, all the mussels that are too small for release and the host species too small to place in the winter pond are moved into the mussel building for the winter. In addition, the channel catfish that were inoculated with winged mapleleaf glochidia in September are kept inside the building on colder pond water throughout the winter to mimic natural conditions. They will gradually be warmed up in a couple weeks to allow the juveniles to drop off to finish out the winter in the intensive mussel culture systems. Keeping the fish inside also allows biologists to

monitor the health and condition of the fish so treatments can be administered if necessary. So in addition to the very interesting mussels, mudpuppies and fish in the building, the students were able to understand a little more about the animal husbandry needed at the hatchery to be able to accomplish the station's restoration efforts. By Angela Baran Dagendesh

Genoa National Fish Hatchery's mission is to recover, restore, maintain and enhance fish and aquatic resources on a basin-wide and national level by producing over 35 aquatic species of varying life stages, participating in active conservation efforts with our partners, and becoming a positive force in the community by educating future generations on the benefits of conservation stewardship



Genoa's mussel building

Pond Season Wraps up at Genoa

Fall has come and gone at Genoa National Fish Hatchery and with it goes a production season of hard work and fruitful returns. Beginning in late September the staff began its nearly two month long process of harvesting fish production ponds. Walleye ponds were harvested first this year followed by bluegills and black crappie. It was a slightly above average year for walleye; the station was able to stock them with state partners in Minnesota and Wisconsin as well as keeping an adequate amount for mussel production. State partners from Wisconsin and Iowa claimed all the surplus bluegill and black crappie available to stock in area waters to help them meet management goals. Yellow perch and smallmouth bass were harvested next on station. Yellow perch numbers were down from last year but the station still met its production goal with surplus being delivered to the state of Illinois. Smallmouth bass numbers were the highest they have been in recent years and with so many surplus smallmouth bass three federal partners and one state partner received fish. The station was also able to keep 6,000 for production of the endangered Higgin's Eye Pearly mussel. Following smallmouth bass and perch harvest it was time for the hatchery to bring in largemouth bass and golden shiners. Largemouth bass numbers were very good again this year and all of the production goals were met. Golden shiners raised on station did not get stocked out this fall because this species is primarily raised on station as a mussel host fish. These will be used in the upcoming months to raise the federally endangered sheep nose mussel. Last but not least the staff harvested the fishing pond that has a mixed bag of fish to be transferred over to the pond used for the kid's ice fishing day. Most of the fish moved over were rainbow trout that were being grown to provide larger fish for the kids to catch. There were also numerous bluegills, yellow perch, and largemouth bass that were put in to provide an opportunity for kids to catch a variety of different species. We now look forward to working on the station's coldwater and Coregonid restoration programs throughout the winter and planning for next year's warmwater production! By Aaron Von Eschen



Seining fish from the kettle to be loaded on to stocking truck



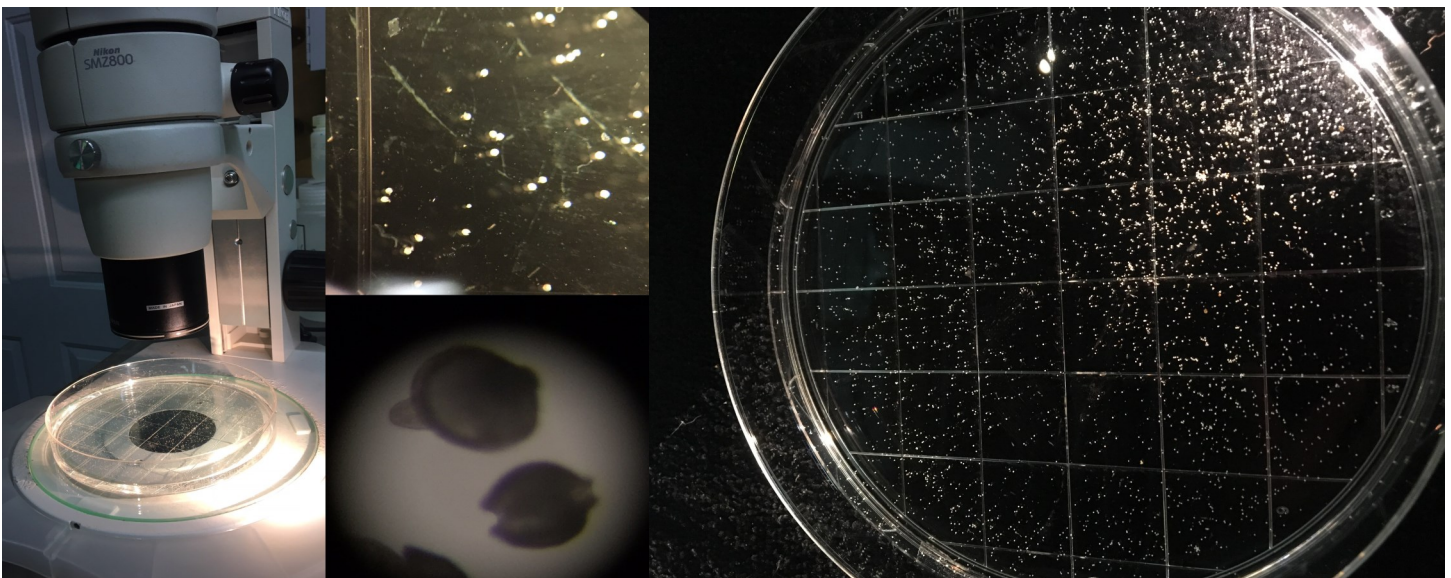
A largemouth bass caught while draining a pond

Genoa National Fish Hatchery mussel biologists dazzled by 50,000 juvenile Mapleleaf mussels

Each fall, hatchery biologists working with U.S. Park Service staff, MN DNR mussel biologists and staff from other U.S. Fish and Wildlife Service offices visit the St. Croix as many as 15 times looking for the federally endangered Winged Mapleleaf that thrive in the clean, clear water. Females holding mussel larvae are brought back to Genoa National Fish Hatchery, the larvae (glochidia) are allowed to attach to channel catfish and then the female mussels are returned to the St. Croix River. In the wild the larval mussels remain attached to the catfish until late spring when the water begins to warm. Hatchery staff has worked hard to replicate this experience for the catfish and their mussel riders in the lab but it has proven to be challenging. In early

November 2016 Genoa's mussel biologists moved 38 channel catfish, just a small part of the 410 infested with winged mapleleaf more than a month before into an aquarium system where they are warmed up to replicate spring's warming water temperatures. By the week of Thanksgiving the first juvenile winged mapleleaf of 2016 were collected. The first vision of newly transformed juvenile mussels is more akin to stars in a very dark sky. Only by putting the dish on the microscope do the tiny moving spots take on the shell and foot characteristic of their adult counterparts (WML). Juvenile mussels are counted on the microscope by estimating the number in each square of the dish. Some days this takes 10 minutes, other days it can take an hour. Every other day juveniles are collected and counted and moved from their dish into the system where they'll eat and grow. Winged mapleleaf are a challenging species to culture and are especially delicate when young. Very few have been laboratory cultured to more than 0.5 mm. By Megan Bradley

Displaying winged mapleleaf



Winged malpeleaf under the microscope

Juvenile winged mapleleaf mussels in dish

Genoa Isolation Building Home to Cisco Restoration

Recently staff from the Jordan River and Iron River National Fish Hatcheries and Alpena Fish and Wildlife Conservation Office were out on Lake Huron, near the Les Cheneaux Islands collecting cisco (*Coregonus artedii*) eggs for current restoration projects. These fish are an important part of the prey fish community in the Great Lakes and serve an important role in many predator-prey relationships. In an effort to reestablish and enhance cisco populations the U.S. Fish and Wildlife Service (FWS) has partnered with multiple agencies to begin to create a broodstock to assist in the reintroduction of lake herring and whitefish in the Great Lakes. Cisco have experienced a decline in the Great Lakes due to commercial fishing, habitat degradation and an invasion of non-native species such as invasive plankton, alewife, and zebra and quagga mussels. A top priority with for the Service has been to recover native species to provide a better balance in food-web structure and function. Eggs were collected from Lake Huron during the month of November and shipped to Genoa National Fish Hatchery for incubation in the current regional isolation facility. Samples from the parents were taken and sent to LaCrosse Fish Health



Staff from Jordan River and Iron River National Fish Hatchery and Alpena Fish and Wildlife Conservation Office collecting Cisco Eggs on Lake Huron.



UV systems and drum filters in the new isolation facility



Zach Kumlin designs an automated system for feeding brine shrimp

Center for disease inspection. Once the eggs arrived on station they were disinfected and incubated at water temperatures between 7-8 °C in an insulated recirculating system. They are currently incubating and being monitored for development. As the eggs begin to hatch, an equal representative sample of fry from each pair of parents will be transferred to circular culture tanks for grow out. Once the fish begin actively feeding they will be offered a combination of live brine shrimp and dry commercial diets. As the eggs are developing and final construction is wrapping up

on the new isolation building, maintenance mechanics Zach Kumlin and Jeff Lockington are adding back up life supports systems and constructing automatic feeding systems for brine shrimp. The automatic feeders will allow biologists to set a timer that will dispense feed into the tanks throughout the day. This is essential because these fish grow better when they are offered small amounts of food spread across intervals during the day and will also support fish health by reducing human interaction in return minimizing stress and maximizing growth. These fish will remain in the isolation facility until clearing three separate disease inspections by the LaCrosse Fish Health Center. If the Cisco clear disease inspection after approximately 18 months, they will be transferred to Jordan River National Fish Hatchery in Michigan. These fish will then be used as captive broodstock in the national fish hatchery system. Future reintroductions of native prey species into the Great Lakes will strengthen food web



Insulated egg incubation system and Cisco eggs

dynamics and increase availability of food for apex predator fish such as Lake Trout. By Orey Eckes

Old Friend Reaches Out to Talk Mussel Recovery

This past month Ralph Simmons, formerly of the Neosho National Fish Hatchery, and currently with Fish and Wildlife Service's Region 2 or Southwest Region, came to pay the Genoa National Fish Hatchery's mussel staff a visit. He was on a fact finding mission on the how-tos of mussel propagation for proposed future Recovery efforts of Endangered Mussels in Texas. Ralph is currently serving as the Acting Project Leader of the Inks Dam National Fish Hatchery while a new project leader search concludes. Then he will head back to the Tishomingo National Fish Hatchery in central Oklahoma, where he serves as the assistant project leader. Mussel biologists Nathan Eckert and Megan Bradley showed Ralph the "Clam Palace", Genoa's freshwater mussel propagation building, also affectionately known as "Where the magic happens". Here they demonstrated an inoculation event, where freshwater mussels are placed on the gills of a specific species of host fish that will accept the larvae, or glochidia of that



Harvesting larvae from a gravid adult female

particular species of mussel. There they will attach and feed off of the body fluids of the fish until such time that they are developed

enough to feed on their own. The larvae will

then be collected in a variety of ways given the needs of a particular project, or past results of being able to rear that species of mussels in intensive propagation systems. The mussel team gave Ralph much food for thought, and hopefully methods used in the southwest Region of Wisconsin can be applied to systems in the Southwest Region of our country. We wish Ralph the best of success in efforts to move the needle of mussel recovery efforts in Region 2. By Doug Aloisi



Ralph Simmons Region 2 biologist

Hines Emerald Larvae Ready for Winter

After a short hot and humid summer Genoa's Hines Emerald Dragonfly larvae are ready for winter! Last winter a small number of larvae were kept in one of the hatchery ponds while the rest were kept in specimen cups in our storage cooler. Larval survival was high enough to determine they would be successful in the pond over winter instead of the in the specimen cups in the cooler. As the weight and growth data was collected, the larvae were separated into two groups based on where the larvae were collected from; Wisconsin and Illinois. The Wisconsin, approximately 141 larvae, group headed back to our partners at the University of South Dakota for further research while the Illinois group, approximately 50 larvae, were kept at Genoa and put back into cages and set out in the pond. Once back at the University of South Dakota the larvae



Genoa staff along with USD partner Rachel Demots place HED larvae back into cages to be set out in the pond over winter



Setting out one of our metal HED cages. This cage holds up to 24 larvae

will be split into two groups. One group will be used for testing the effects of an insecticide known as neonicotinoids, a new class of insecticides which action on certain receptors in the nervous system. Neonicotinoids are much more toxic to invertebrates thus creating an issue for non-target insects. Neonicotinoids can be applied to the soil and taken up by plants affecting potential food sources. The other group will be used for an experiment using artificial crayfish burrows to see how the larvae use them and how they avoid being predated. In their natural environment larvae use crayfish burrows to hibernate but it is unknown exactly how they use them and how they avoid predators. As little is known about the Hines Emerald Dragonflies in their larval state hopefully these experiments will prove to be useful as the recovery process continues. By Erin Johnson

USD partner Rachel Demots tightening a cap back onto a larvae cage



Upcoming calendar of events



January 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 New Year's Day	2	3	4	5	6	7
8	9	10 Wage Grade Meeting-Milwaukee, WI Coolwater Fish Culture Workshop-South Bend, IN	11	12	13	14
15	16 Martin Luther King Day	17	18	19 Summit Elementary Outdoor Classroom	20	21
22	23	24	25 Introduction to Fish Health Class	26	27	28
29	30	31				